Transport GT24

B4980

Service Engineer's Manual

PREFACE

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Version 1.0

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Operation is subject to the following conditions:

1) This device may not cause harmful interference, and

2) This device must accept any interference received including interference that may cause undesired operation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Plug the equipment into an outlet on a circuit different from that of the receiver.

Consult the dealer on an experienced radio/television technician for help.

Notice for Canada

This apparatus complies with the Class B limits for radio interference as specified in the Canadian Department of Communications Radio Interference Regulations. (Cet appareil est conforme aux norms de Classe B d'interference radio tel que specifie par le Ministere Canadien des Communications dans les reglements d'ineteference radio.)

Notice for Europe (CE Mark) This product is in conformity with the Council Directive 89/336/EEC, 92/31/EEC (EMC).

CAUTION: Lithium battery included with this board. Do not puncture, mutilate, or dispose of battery in fire. Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulations.

About this Manual

This manual provides you with instructions on installing your Transport GT24. This manual is intended for experienced users and integrators with hardware knowledge of personal computers.

This manual consists of the following parts

Chapter 1: Provides an Introduction to the Transport GT24 B4980 bare-bones, packing list, describes the external components, gives a table of key components, and provides block diagrams of the system.

Chapter 2: Covers procedures on installing the CPU, memory modules, and hard drives.

Chapter 3: Covers removal and replacement procedures for pre-installed components

Appendix: Provides information on installing SMDC cards and describes the differences between mainboard BIOS and system BIOS. The FRU parts list and cable connection tables are also provided for reference of system setup.

For information on the mainboard, please refer to the attached mainboard user's manual. You can find the detailed description about jumper and BIOS settings from the motherboard manual.

SAFETY INFORMATION

Before installing and using the Transport GT24, take note of the following precautions:

— Read all instructions carefully.

— Do not place the unit on an unstable surface, cart, or stand.

— Do not block the slots and opening on the unit, which are provided for ventilation.

— Only use the power source indicated on the marking label. If you are not sure, contact the Power Company.

— The unit uses a three-wire ground cable, which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.

— Do not place anything on the power cord. Place the power cord where it will not be in the way of foot traffic.

— Follow all warnings and cautions in this manual and on the unit case.

— Do not push objects in the ventilation slots as they may touch high voltage components and result in shock and damage to the components.

— When replacing parts, ensure that you use parts specified by the manufacturer.

— When service or repairs have been done, perform routine safety checks to verify that the system is operating correctly.

— Avoid using the system near water, in direct sunlight, or near a heating device.

— Cover the unit when not in use.

Table of Contents

Chapter 1:Overview

Chapter 2:Setting Up

Chapter 3:Replacing Pre-Installed Components

Appendix I: BIOS Differences

Appendix II: Cable Connection Tables

Appendix III: Installing SMDC Cards

Appendix IV: FRU Parts List

Chapter 1: Overview

1.1 About the Transport GT24 B4980

Congratulations on your purchase of the TYAN Transport GT24 (B4980), a highly-optimized rack-mountable barebone system. The Transport GT24 (B4980) is designed to support the latest four AMD® Opteron 8000 series 1207-pin processors, providing a rich feature set and incredible performance. Leveraging advanced technology from AMD®, the Transport GT24 (B4980) server system is capable of offering scalable 32 and 64-bit computing, and high-bandwidth memory design. The Transport GT24 (B4980) not only empowers your company in today's demanding IT environment but also offers a smooth path for future application usage.

TYAN is also proud to deliver the Transport GT24 (B4980) in SATA flavor while supporting up to four (4) hot-swap hard drives and one (1) DVD-ROM. The Transport GT24 (B4980) uses TYAN's latest tooling-made chassis featuring a robust structure, tool-less and modularized design, and a solid mechanical enclosure. All of this provides the Transport GT24 (B4980) the power and flexibility to meet the needs of nearly any server application.

1.2   Tank Features

Enclosure
- Industry 19" rack-mountable 1U chassis storage bay
  - (4) 3.5" HDD bays
  - (1) slim DVD-ROM bay
- Dimension: D 25.4 x W 17.2 x H 1.72 inch (645x436x43.6mm)

Processor
- Quad 1207-pin ZIF sockets
- Supports up to 4 AMD® Rev. F Opteron™ 8000 (95W) series processors
- Up to 1.0GHz Hyper-Transport link support

Chipsets
- nVIDIA NFP3600 (MCP55 Pro)
- SMSC DME5017

Memory
- Dual memory channels and supports 4-rank memory
- Supports 16 DDR2 667/533/400 DIMMS, max. size of 64GB registered, ECC memory

Video
- XGI® Volari Z7 (XG20)
- 16MB frame buffer memory

Storage
- Hard Disk Drives:
  - B4980G24V4H, supports four SATA-II storages with RAID 0, 1, 0+1, 5, JBOD
- Pre-installed slim type DVD-ROM

Motherboard
- TYAN S4980 system board
- E-ATX footprint (12 x 13")

Back I/O Ports
- Stacked PS/2 mouse & keyboard ports
- One double-decked USB 2.0 ports
- COM1 connector
- One 15-pin VGA port
- Two side-by-side RJ45 10/100/1000 Base-T port with link/activity LED

Front Panel Features
- I/O
  - (2) USB 2.0 ports
- LED indicators
  - Power LED
  - (2) LAN LEDs
  - HDD active LEDs
  - System Warning LED
  - ID LED
- Switches
  - Power
  - Reset
  - NMI
  - ID

Integrated Storage Controller
- B4980G24V4H: supports four SATA-II ports by MCP55P

Networking
- Two MCP55P integrated MAC with two Marvell 88E1116 single port Gigabit Ethernet PHY (TBD)
  - Integrated TCP offload Engine (TOE)
  - IEEE802.3 compliant, WOL/PXE support

Server Management
- M3291, IPMI 2.0 Remote System Mgmt card
- Chassis intrusion alert
- Renesas H8S2167 BMC controller
- BT, KCS, Logging support
- IPMI-over-LAN
- Remote power on/off and reset

BIOS
- AMI BIOS 8Mbit Flash
- Supports ACPI 2.0
- PnP, DMI2.0 WfM2.0 power management (S1, S4, S5 support)

Power Supply
- EPS 12V, 1U, 600W
- 100V~240V AC input

System Cooling

- (3) 40*40*56mm + (2) 40*40*28mm system fans
- (4) CPU passive heatsinks

Regulatory

- FCC Class A (Declaration of Conformity)
- CE (Declaration of Congormity)
- VCCI
- C-Tick

Environment Temperature

- Operating temperature $5^oC\sim35^oC$
- Non-operating temperature $-40^oC \sim 70^oC$

1.3   Unpacking

This section describes the Transport GT24 package contents and accessories.

1.3.1 Box Contents

Component	Description
	Industry standard 1U chassis, (4) hot-swap HDD bays
	TYAN S4980 motherboard (pre-installed)
	8x DVD-ROM (pre-installed)
	EPS 600W PSU (pre-installed)
A B	A (3) 40mm x 56mm fans B (2) 40mm x 28mm fans
	M1003 LED and USB control board (pre-installed)
	M1012 Fan Adapter Board
	M1208 SATA Backplane

1.3.2 Accessories

If any items are missing or appear damaged, contact your retailer or browse to TYAN's Web site for service: http://www.tyan.com.

The Web site also provides information on other TYAN products, plus FAQs, compatibility lists, BIOS settings, and more.

Mounting Ears & Screws

(4) Heatsink

HDD Screws

Power Cables
Left to right: Europe, US

1 x Tyan Barebone driver CD

Barebone Manual

Mainboard Manual

Rail Kit

Sliding Rails x 2

Sliding Brackets
Front L-Bracket x 2
Rear L-Bracket x 2

Mounting Bracket x 4

Screws Kit

1.4 About the Product

The following views show you the product.

1.4.1 Front View

Reset switch

NMI switch

ID Switch

Warning LED

HDD activity LED

Power LED

DVD-ROM Drive

USB ports

ID LED

2 x LAN LEDs

Power switch

Hard Drive Bay x 4

1.4.2 Rear View

Power Supply Socket

PS/2 Mouse/Keyboard Ports

2 USB Ports

Serial Port

VGA Port

ID LED

LAN Port (NIC2)

LAN Port (NIC1)
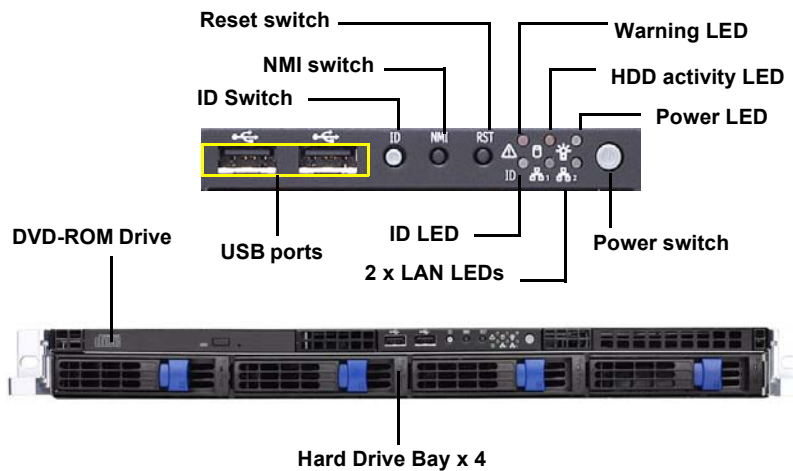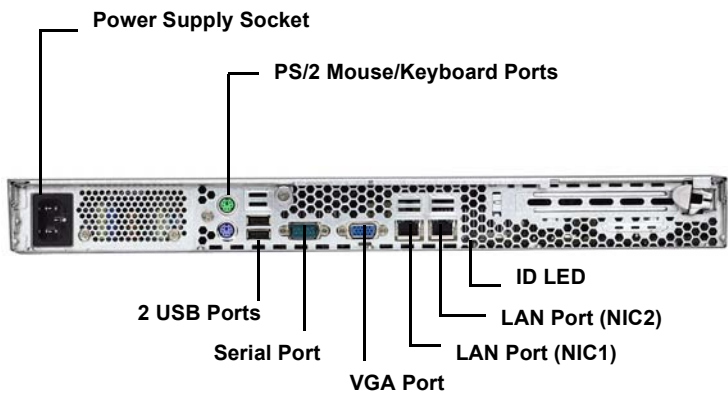
1.4.3 LED Definition

Front Panel

LED	Color	State	Description
Power	Green OFF	ON OFF	Power ON Power OFF
HDD Activity	Amber OFF	Random Blinking OFF	HDD access activity No disk activity
LAN1/LAN2 Linkage	Green Green OFF	ON Blinking OFF	LAN linked LAN accessing No LAN linked
Warning	Red OFF	ON OFF	Fan fails Normal
Hot Swappable HDD Tray Power LED	Green OFF	ON OFF	Power connected Power disconnected
Hot Swappable SATA HDD Access LED	Amber OFF	Random Blinking OFF	HDD Access Activity No disk activity
Hot Swappable SAS HDD Access LED	Amber Amber OFF	ON Random Blinking OFF	HDD ready HDD access activity HDD not ready
ID LED	Blue OFF	ON OFF	System is identified System is not identified

Rear I/O LED

*Right or Left is viewed from the rear.

LED	Color	State	Description
RJ45 NIC1 Linkage (Left Side)	Green Green OFF	ON Blinking OFF	LAN linked LAN accessing No LAN linked
RJ45 NIC1 Mode (Right Side)	Amber Green OFF	ON ON OFF	Gigabit mode 100M mode 10M mode
RJ45 NIC2 Linkage (Left Side)	Green Green OFF	ON Blinking OFF	LAN linked LAN accessing No LAN linked
RJ45 NIC2 Mode (Right Side)	Amber Green OFF	ON ON OFF	Gigabit mode 100M mode 10M mode
ID LED	Blue OFF	ON OFF	System is identified System is not identified

1.4.4 Internal View
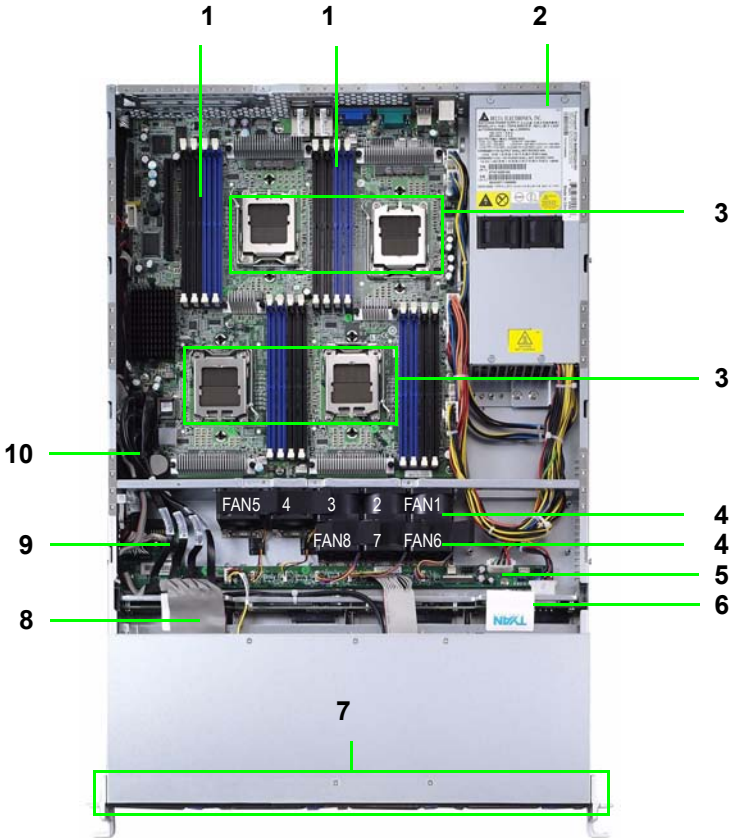
1. Memory Slots
2. EPS 12V Power Supply
3. CPU Sockets
4. System Fans
   Top (right to left):
   FAN1/2/3/4/5
   Bottom (right to left):
   FAN6/7/8
5. M1012 Adapter Board
6. M1208 SATA Backplane
7. Four SATA HDD Bays
8. DVD-ROM Cable
9. Four SATA Cables
10. Fan Cable

1.4.5 Motherboard Block Diagram
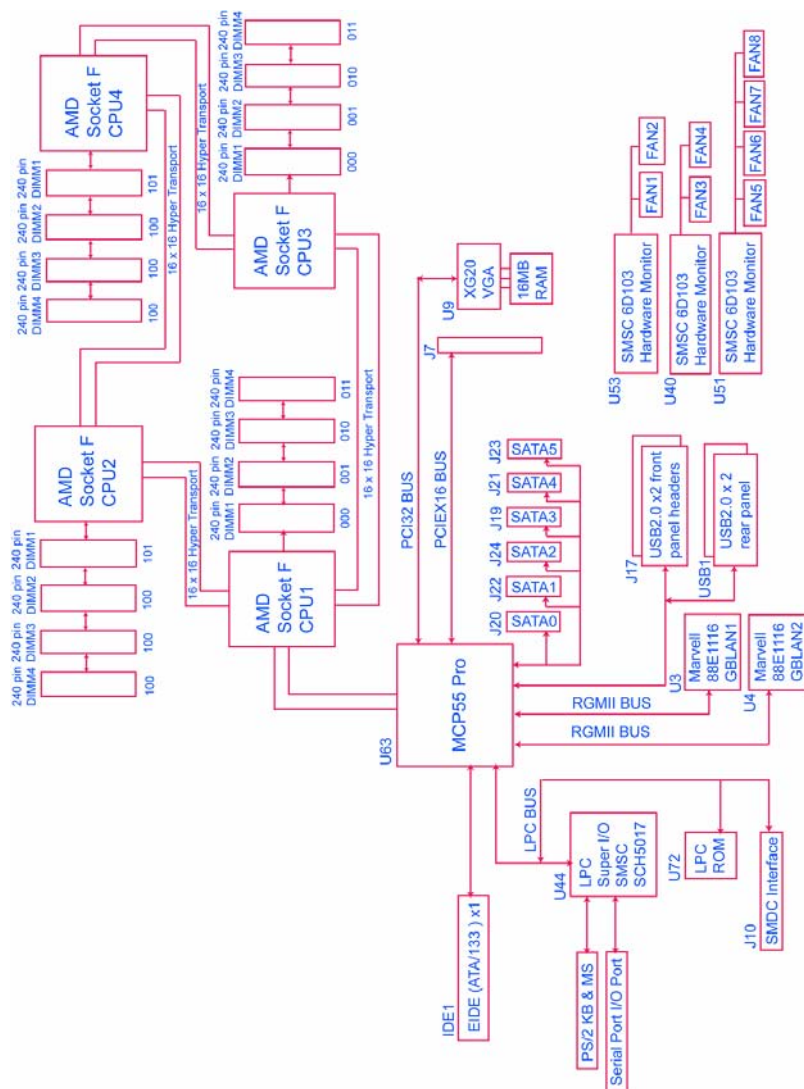
1.4.6 Motherboard (S4980) Layout
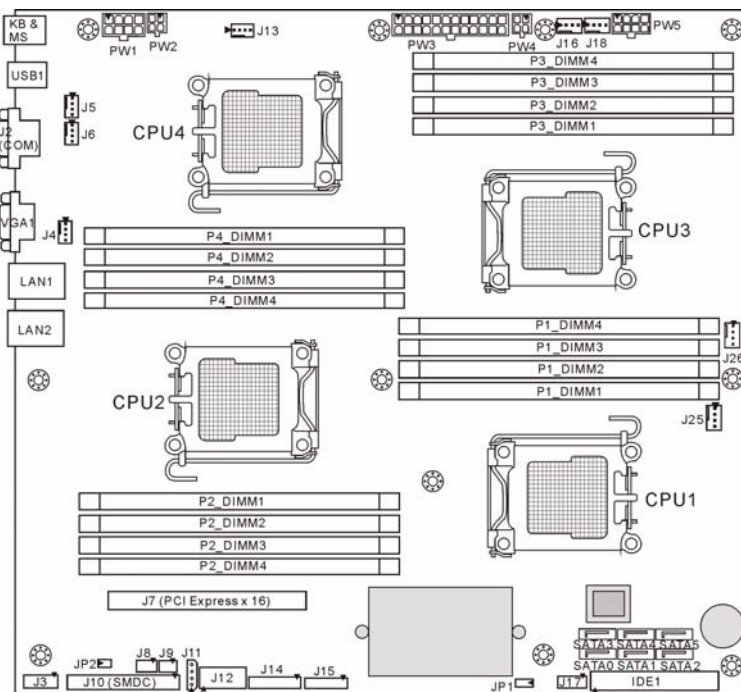
Jumpers & Connectors

Jumper / Connector	Function
J4/J5/J6/J13/J16/ J18/J25/J26	Fan connector with speed control
J12	COM Port Pin Header
J17	USB Front Panel Pin Header
J14	Front Panel Pin Header
J11	IPMB Pin Header
J10	SMDC Connector
J9	LCM Pin Header
J8	SGPIO Pin Header
IDE1	Hard Drive Connector
JP2	SMDC Warning LED Header (for M3291)
JP1	Clear CMOS Jumper
SATA0/1/2/3/4/5	Serial ATA RAID Connectors
J3	TYFP2 Pin Header
J15	Fan Tachometer Pin Header

Chapter 1: Overview

Chapter 2: Setting Up

2.0.1 Before You Begin

This chapter explains how to install the CPU, CPU heatsink, memory modules, and hard drives. Instructions on inserting a PCI card are also given.

Take note of the precautions mentioned in this section when installing your system.

2.0.2 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers prevents them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

2.0.3 Tools

The following procedures require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected using your fingers. It is recommended that you do not use needle-nosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

2.0.4 Precautions

Components and electronic circuit boards can be damaged by discharges of static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the Transport GT24 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from the power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.

- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.

- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.

- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.

- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.

- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Notes:
- All connectors are keyed to only attach one way.
- Always use the correct screw size as indicated in the procedures.

2.1 Rack Mounting

After installing the necessary components, the Transport GT24 can be mounted in a rack using the supplied rack mounting kit.

Rack mounting kit

Sliding Rails x 2:

Sliding Brackets x 4 (Front x 2, Rear x 2)

Mounting Ears x 2

Screws Kit x 1

Mounting Brackets x 4

2.1.1 Installing the Server in a Rack

Follow these instructions to mount the Transport GT24 into an industry standard 19" rack.

NOTE: Before mounting the Transport GT24 in a rack, ensure that all internal components have been installed and that the unit has been fully tested. Maintenance can be performed on the unit while in a rack but it is preferable to install the device in a fully operational condition.

Screws List (including screws for SMDC)
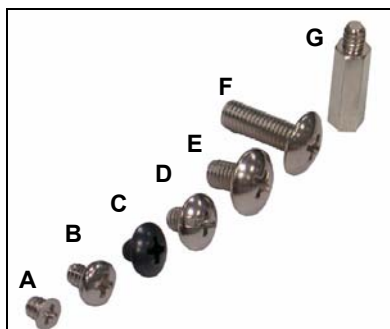
A: Flat 6#-32 x4~x16

B: B-type 6#-32 x4

C: M4-4L x8

D: M4-5L x4

E: M4-8L x8

F: M4-15L x2

G: 13.5mm stand-off x1

Installing the Inner Rails to Chassis

1. Screw the mounting ear to each side of Transport GT24 as shown using 2 screws from the supplied screws kit.

Mounting Ears

2. Draw out the inner rails from rail assembly. Install inner rails to left and right sides of chassis using 2 M4-5L(D) screws for each side.
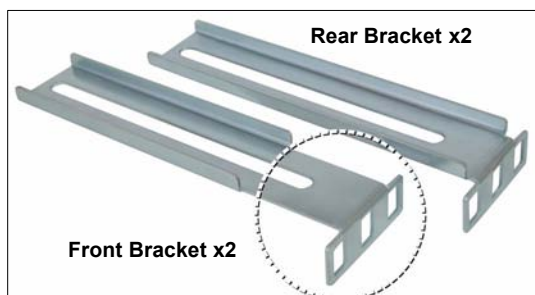

Installing Outer Rails to the Rack
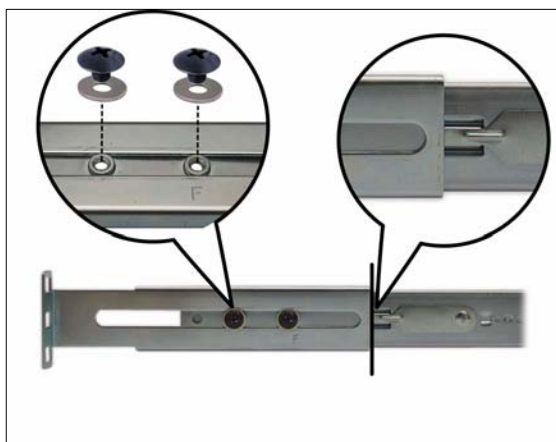
3. Measure the distance between inner side of the front and rear mounting brackets in the rack.

4. Locate the front and rear brackets.

Rear Bracket x2

Front Bracket x2

5. Reserve 40mm on the front bracket. Secure the front bracket to outer rail with 2 M4-4L(C) screws.

6. Reserve the distance same as in Step 2 on rear bracket. Secure the rear bracket to outer rail with 2 M4-4L(C) screws.
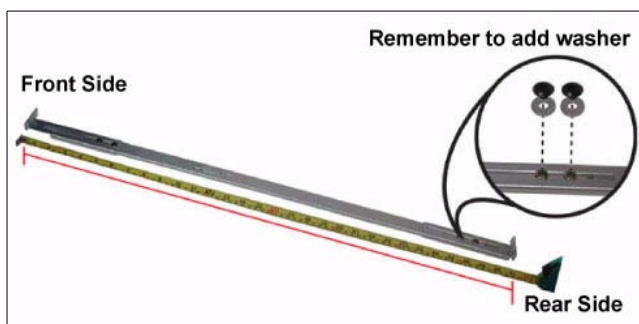
7. Secure the outer rail to the rack using 2 brackets and 4 M4-8L(E) screws for each side (A). Secure the mounting brackets from inside, not outside, of the rack (B).

A

Mounting Bracket

B
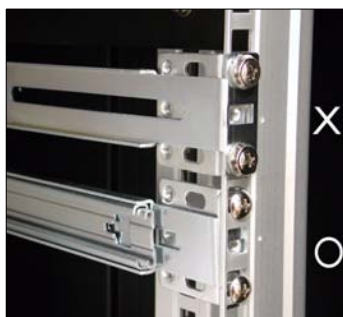
Rackmounting the Server

8. Draw out the middle rail to the latch position.

9. Lift the chassis and then insert the inner slide rails into the middle rails.
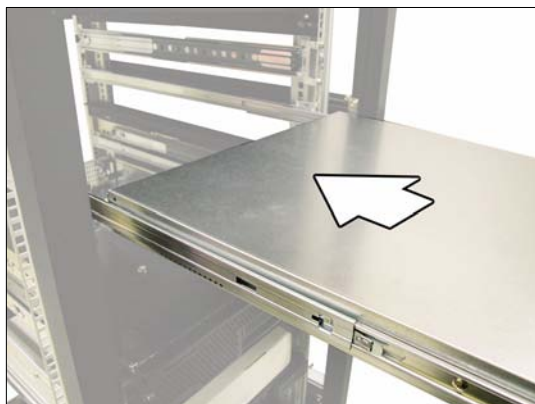
10. Push the chassis in and press the latch key (A). Then push the whole system into the rack (B).

A

B

11. Secure the mounting ears of chassis to the rack with 2 M4-15L(F) screws.

NOTE: To avoid injury, it is strongly recommended that two people lift the Transport GT24 into the place while a third person screws it to the rack.

2.2 Installing Motherboard Components

This section describes how to install components on to the motherboard, including CPU, memory modules and PCI card.

2.2.1 Removing the Chassis Cover

Follow these instructions to remove the Transport GT24 chassis cover.

1. Remove the screw on the back side. Then slide the chassis cover in the direction of arrow.

2. Lift the cover off.

2.2.2 Removing the Air Duct

Remember to remove the air duct before installing any com-
ponents to the mainboard.

1. Lift the air duct off.
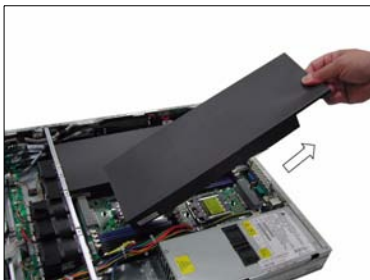
2. Remove the second air duct.

2.2.3 Install the CPU and Heatsink

Follow these instructions to install the CPU and CPU heatsink.

1. Identify four CPU sockets. Always install processor(s) starting with CPU1.

2. First remove the load plate.

3. Pull the CPU lever up to release the CPU socket to a fully open position.
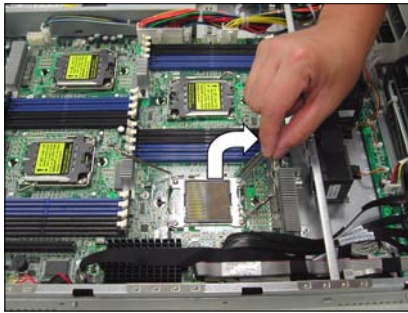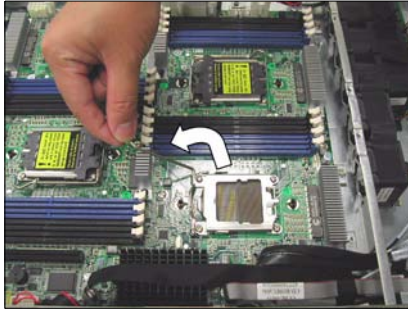
4. Place the CPU on the CPU socket, ensuring that pin 1 is located in the right direction.

5. Press the CPU socket lever down in the direction shown to secure the CPU.

screw holes (for heatsink)

6. Place the heatsink on top of the CPU and screw the heatsink to the motherboard.
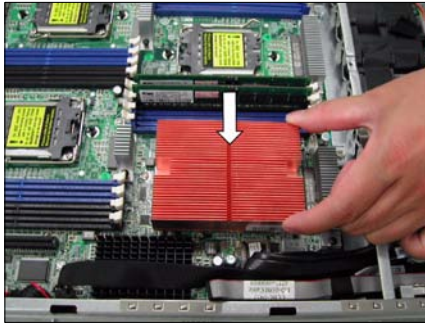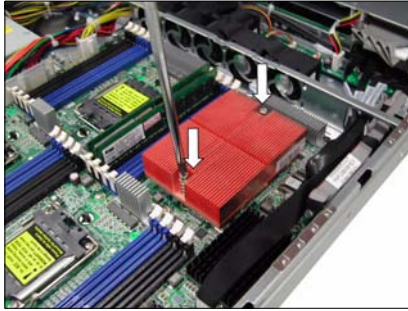
7. Repeat the same procedures to install CPU and heatsink for other CPU socket if necessary.

2.2.4 Installing the Memory

Follow these instructions to install the memory modules on the motherboard.

1. Identify memory slots corresponding to each CPU socket on the motherboard.
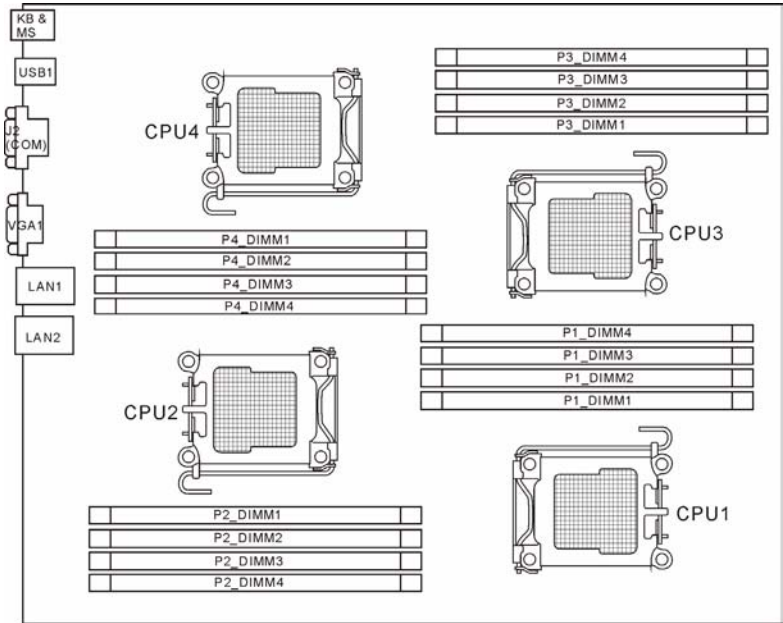
2. Press the memory slot locking levers in the direction of the fingers as shown in the following illustration.

3. Install memory in the slots starting with P1_DIMM3 and P1_DIMM4. When inserted properly, the memory slot locking levers lock automatically onto the indentations at the ends of the module. For optimal system operation, please install memory **in pairs**.

4. When inserted properly, the memory slot locking levers lock automatically onto the indentations at the ends of the module.
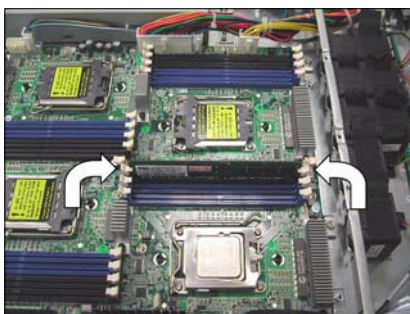
5. For optimal system operation, always install memory **in pairs**. Repeat the same procedures to install memory for other processors if necessary.

CPU/Memory Population Table

The following chart outlines the suggested rules for populating memory.

CPU/DIMM	Single (CPU1 only)		Dual (CPU1 & CPU2)		Four (CPU1, CPU2, CPU3, CPU4)	
PI_DIMM1		x		x		x
P1_DIMM2		x		x		x
P1_DIMM3	x	x	x	x	x	x
P1_DIMM4	x	x	x	x	x	x
P2_DIMM1				x		x
P2_DIMM2				x		x
P2_DIMM3			x	x	x	x
P2_DIMM4			x	x	x	x
P3_DIMM1						x
P3_DIMM2						x
P3_DIMM3					x	x
P3_DIMM4					x	x
P4_DIMM1						x
P4_DIMM2						x
P4_DIMM3					x	x
P4_DIMM4					x	x

2.3   Installing the External Hard Drive

The GT24 chassis kit supports external SATA or SCSI hard drives.

Follow these instructions to install an external SATA or SCSI hard drive.

1. Press the locking lever latch in the direction of arrow (**A**) and then pull the locking lever open (**B**).

2. Slide the drive tray out.
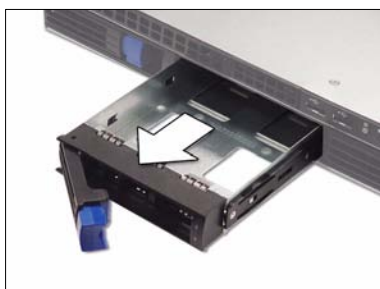
3. Place a hard drive into the drive tray.

4. Using 4 HDD screws to secure the HDD.

5. Reinsert the drive tray into the chassis (A), ensuring that the drive tray is completely inserted into the chassis (B).

A

B

6. Pressing the locking lever to secure the hard drive tray.
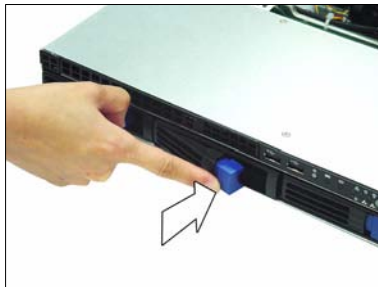
2.4   Recovering the Chassis Cover

Follow these instructions to put the air ducts and chassis cover back in place.

1. Place one end of the air duct slightly under the link bar and then press it down gently.

.
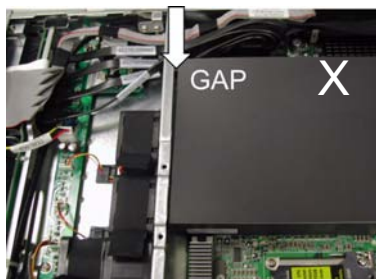
2. Repeat the same procedures for the second air duct and then replace the chassis cover.

3. The system setup is now complete.

NOTE

Chapter 3: Replacing Pre-Installed Components

3.1 Introduction

This chapter explains how to replace pre installed components including the motherboard, LED control board, HDD, and CD-ROM drive.

Take note of the precautions in this section when installing your system.

3.1.1 Work Area

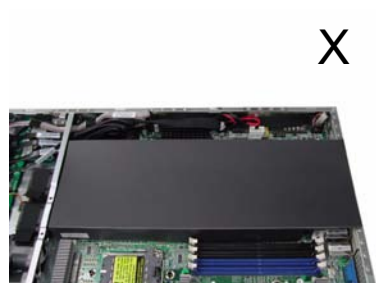Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers keeps them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

3.1.2 Tools

The procedures that follow require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected using your fingers. It is recommended that you do not use needle-nosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

3.1.3 Precautions

Components and electronic circuit boards can be damaged by static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the Transport GT24 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from your computer power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.

- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.

- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.

- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.

- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.

- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Notes:
- All connectors are keyed to only attach one way.
- Always use the correct screw size as indicated in the procedures.

3.2   Disassembly Flowchart

The following flowchart outlines the disassembly procedure.

```
┌──────────────────────┐                    ┌──────────────────────────┐
│   Rear Components     │                    │                          │
└──────────────────────┘                    ▼                          │
         │                          ┌──────────────┐                   │
         ▼                          │    DIMMs     │                   │
┌──────────────────────┐           └──────────────┘                   │
│  Chassis rear cover  │                    │                          │
└──────────────────────┘                    ▼                          │
         │                          ┌──────────────────────┐           │
         ▼                          │ CPU/heatsink assembly│           │
┌──────────────────────┐           └──────────────────────┘           │
│      Mainboard       │──────────────────── │ ────────────────────────┘
└──────────────────────┘                    ▼
         │                          ┌──────────────────────┐
         ▼                          │      PCI card        │
┌──────────────────────┐           └──────────────────────┘
│    Power Supply      │                    │
└──────────────────────┘                    ▼
                                    ┌──────────────────────┐
                                    │      Mainboard       │
                                    └──────────────────────┘
```

```
                    ┌──────────────────────┐
                    │   Front Components    │
                    └──────────────────────┘
                               │
                               ▼
                    ┌──────────────────────┐
                    │  Chassis rear cover  │
                    └──────────────────────┘
                               │
         ┌─────────────────────┼─────────────────────┐
         ▼                     ▼                     ▼
  ┌────────────┐        ┌────────────┐        ┌────────────┐
  │  DVD-ROM   │        │    PCBs    │        │    FAN     │
  └────────────┘        └────────────┘        └────────────┘
                               │
         ┌─────────────────────┴─────────────────────┐
         ▼                                            ▼
  ┌────────────┐                            ┌──────────────────┐
  │  Control   │                            │  M1012           │
  │  Board     │                            │  Adapter Board   │
  └────────────┘                            └──────────────────┘
                                                     │
                                                     ▼
                                            ┌──────────────────┐
                                            │  HDD Backplane   │
                                            └──────────────────┘
```
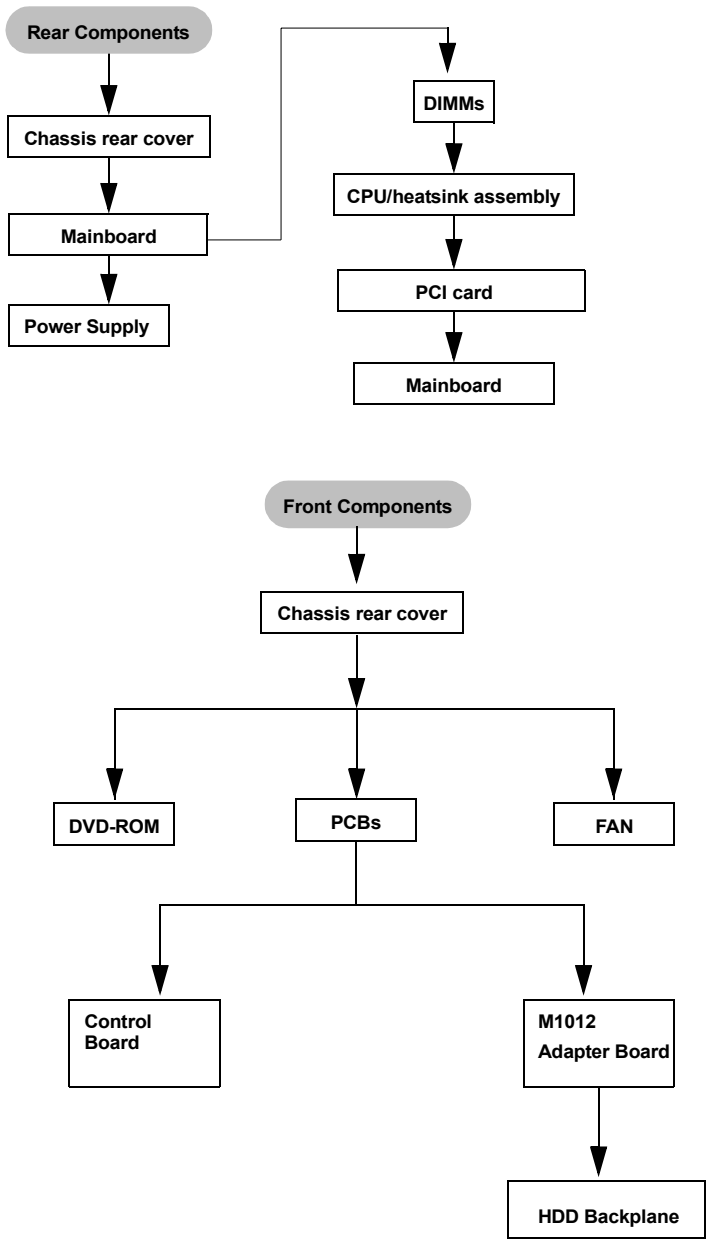
3.3 Removing the Cover

Before replacing any parts you must remove the chassis cover.

Follow these instructions to remove the cover of the Transport GT24 chassis cover.

1. Remove the screw on the back side. Then slide the chassis cover in the direction of arrow.

2. Lift the chassis cover and air ducts off.

3.4   Replacing Motherboard Components

Follow these instructions to replace motherboard compo-
nents, including the motherboard.

3.4.1   Disconnecting All Motherboard Cables

Before replacing the motherboard or certain components,
remove cables connected to the motherboard. Follow these
instructions to remove all motherboard cabling.

1. Disconnect power cables and the DVD-ROM drive/power
    cables.
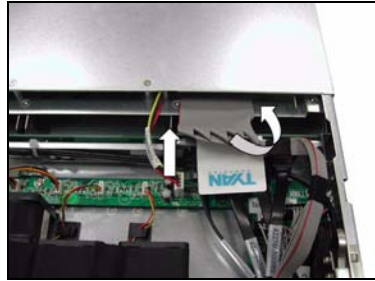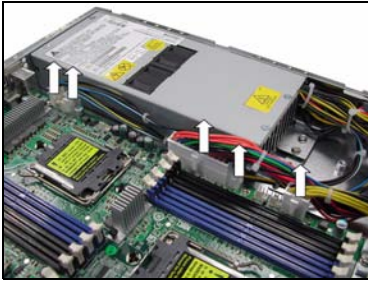
2. Disconnect all cables from FAN, SATA, chassis intrusion
    and front panel (USB and control board) connectors.
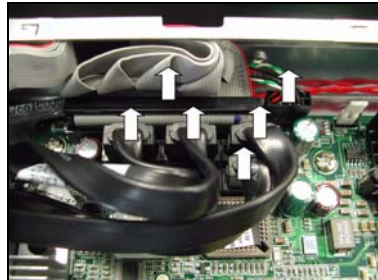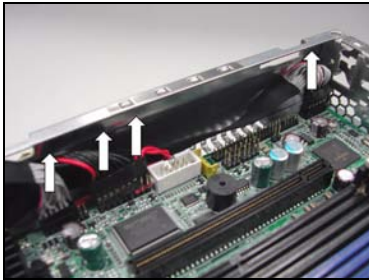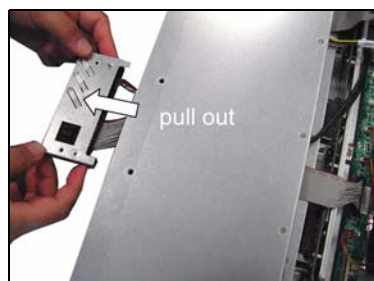
3.4.2 Removing the Motherboard

After removing all of those cables, follow these instructions to remove the motherboard from the chassis.

1. Remove eleven screws securing the motherboard to the chassis.
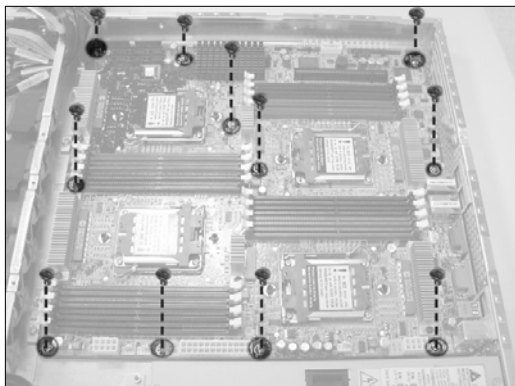
2. Remove the motherboard.

3.5   Replacing the Slim DVD-ROM

Follow these instructions to replace the DVD-ROM.

1. Remove power and data cables from the slim DVD-ROM adapter.

2. Press the tab in the directions as show to release the DVD-ROM drive.
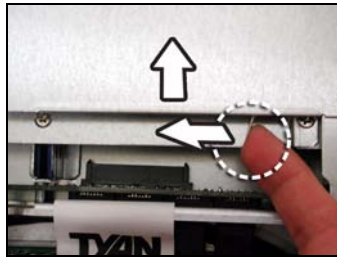
3. The DVD-ROM drive will be freed from the drive bay after pressing the tab.

4. Remove two screws that secure DVD-ROM drive to the bracket.

5. Replace the DVD-ROM drive.

6. Secure DVD-ROM to the bracket using two screws. Then replace the unit into the drive bay and connect the DVD-ROM power and data cables.

3.6   Replacing the LED Control Board

Follow these instructions to replace the LED control board.

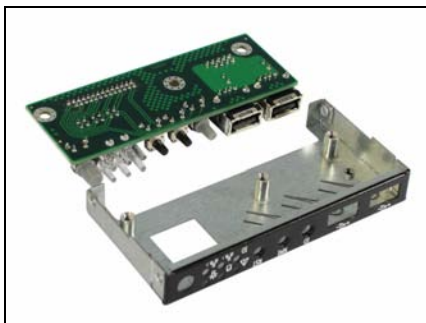1. Remove two screws securing LED control board unit to the chassis.

2. Lift the LED control board unit free of the chassis.

3. Remove three screws securing LED control board to the bracket.
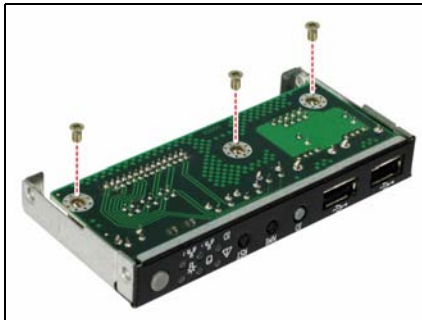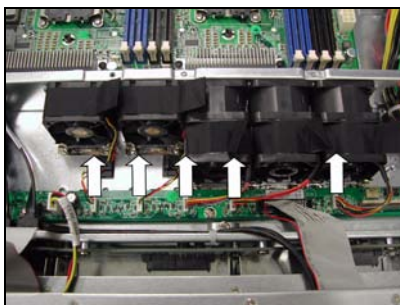
4. Lift the LED control board free from the chassis. After replacement, insert the unit into the chassis.
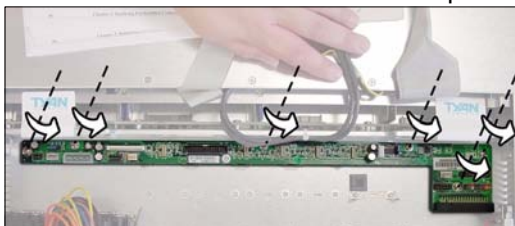
3.7   Replacing the M1012 Adapter Board

1. Remove all of those cables connected to the adapter board, including fan cables, DVD-ROM power cable, front LED panel cable, power cables, and SATA cables.
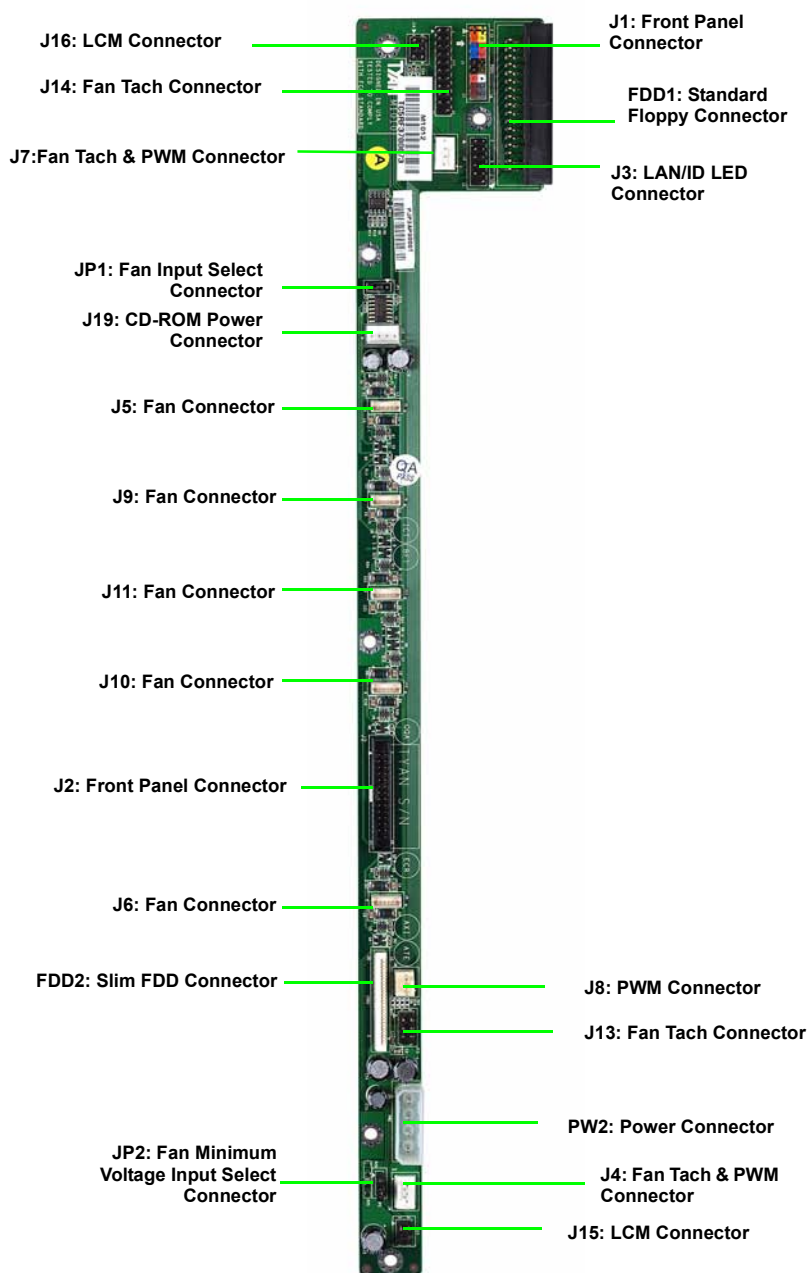
release cable clip

remove fan
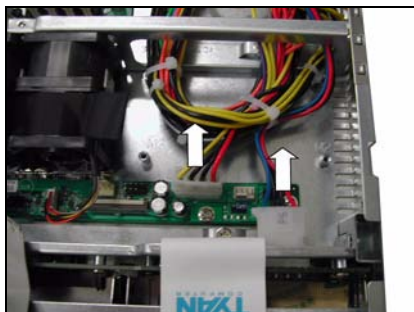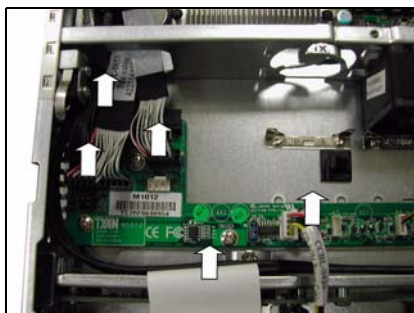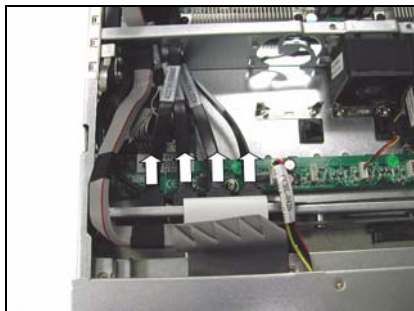
2. Remove six screws to release the adapter board.

3.7.1 M1012 Adapter Board Features for B4980

J16: LCM Connector

J14: Fan Tach Connector

J7:Fan Tach & PWM Connector

JP1: Fan Input Select Connector

J19: CD-ROM Power Connector

J5: Fan Connector

J9: Fan Connector

J11: Fan Connector

J10: Fan Connector

J2: Front Panel Connector

J6: Fan Connector

FDD2: Slim FDD Connector

JP2: Fan Minimum Voltage Input Select Connector

J1: Front Panel Connector

FDD1: Standard Floppy Connector

J3: LAN/ID LED Connector

J8: PWM Connector

J13: Fan Tach Connector

PW2: Power Connector

J4: Fan Tach & PWM Connector

J15: LCM Connector

3.7.2 M1012 Adapter Board Connector Pin Definition

J1 TYFP Front Panel Connector

1	HDLED+	2	PW_LED+
3	HDLED -	4	PW_LED -
5	RESET-	6	PWR_SW+
7	RESET+	8	PWR_SW -
9	VOLTAGE5	10	WLED+
11	EXT_INT	12	WLED-
13	V5SB	14	KEY PIN
15	ICH_SMBDAT	16	GND
17	ICH_SMBCLK	18	INTRU#

J2 Front Panel Connector

1	HDLED+	2	HDLED-
3	RESET+	4	RESET-
5	PW_LED+	6	PW_LED-
7	WLED+	8	WLED -
9	ICH_SMBDAT	10	ICH_SMSCLK
11	EXT_INT	12	VOLTAGE5
13	V5SB	14	INTRU#
15	PWR_SW+	16	PWR_SW-
17	LAN1_LED+	18	LAN1_LED -
19	LAN2_LED+	20	LAN2_LED-
21	LAN3_LED+	22	LAN3_LED-
23	ID_LED+	24	ID_LED-
25	ID_SW+	26	ID_SW-
27	KEY PIN	28	NC

J3 LAN/ID LED Connector

1	LAN1_LED+	2	LAN1_LED-
3	LAN2_LED+	4	LAN2_LED-
5	LAN3_LED+	6	LAN3_LED-
7	ID_LED+	8	ID_LED-
9	ID_SW+	10	ID_SW-
11	KEY PIN	12	NC

FAN Signal Related Connector Pin Definition

NOTE: The FAN signal naming is based on HW circuit design only. It might be different from the system fan naming.

J4 Fan TACH & PWM Connector

1	GND
2	NC
3	FAN1_TACH
4	PWM1 (Default)

J7 Fan TACH & PWM Connector

1	GND
2	NC
3	FAN7_TACH
4	PWM1 (Default)

J8 PWM Connector

1	GND
2	PWM2
3	FAN1_TACH

Chapter 3: Replacing Pre-Installed Components

J13 Fan TACH Connector

1	GND	2	FAN1_TACH
3	GND	4	FAN2_TACH
5	GND	6	FAN3_TACH
7	KEY PIN	8	NC

J14 Fan TACH Connector

1	GND	2	FAN1_TACH
3	GND	4	FAN2_TACH
5	GND	6	FAN3_TACH
7	GND	8	FAN4_TACH
9	GND	10	FAN5_TACH
11	GND	12	FAN6_TACH
13	GND	14	FAN7_TACH
15	GND	16	FAN8_TACH
17	GND	18	FAN9_TACH
19	GND	20	FAN10_TACH
21	KEY PIN	22	PWM

J6 Fan Connector

1	FAN1_12VPWM
2	FAN1_TACH
3	GND
4	GND
5	FAN2_TACH
6	FAN2_12VPWM

J10 Fan Connector

1	FAN3_12VPWM
2	FAN3_TACH
3	GND
4	GND
5	FAN4_TACH
6	FAN4_12VPWM

J11 Fan Connector

1	FAN5_12VPWM
2	FAN5_TACH
3	GND
4	GND
5	FAN6_TACH
6	FAN6_12VPWM

J9 Fan Connector

1	FAN7_12VPWM
2	FAN7_TACH
3	GND
4	GND
5	FAN8_TACH
6	FAN8_12VPWM

J5 Fan Connector

1	FAN9_12VPWM
2	FAN9_TACH
3	GND
4	GND
5	FAN10_TACH
6	FAN10_12VPWM

J15 & J16 LCM Connectors

1	LCM_+5V	2	LCM_SIN
3	KEY PIN	4	GND
5	LCM_+5VSB	6	LCM_SOUT

JP1 Fan Input Select Connector

| Pin1 & Pin2 Close	Fan PWM signal from J8
Pin2 & Pin3 Close	Fan PWM signal from J4, J7 & J14 (Default)

JP2 Fan Input Select Connector

Pin1 & Pin2 Close	0V
Pin2 & Pin3 Close	+5V (Default)

3.8   Replacing the SATA Backplane

1. After removing the M1012 adapter board, disconnect those cables connected to the SATA backplane, including SATA and power cables.
2. Grab the two tabs to lift the SATA backplane off.
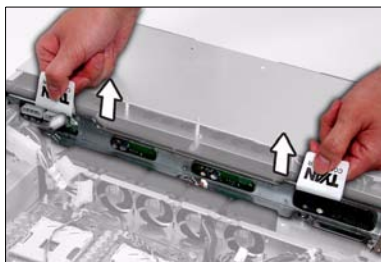
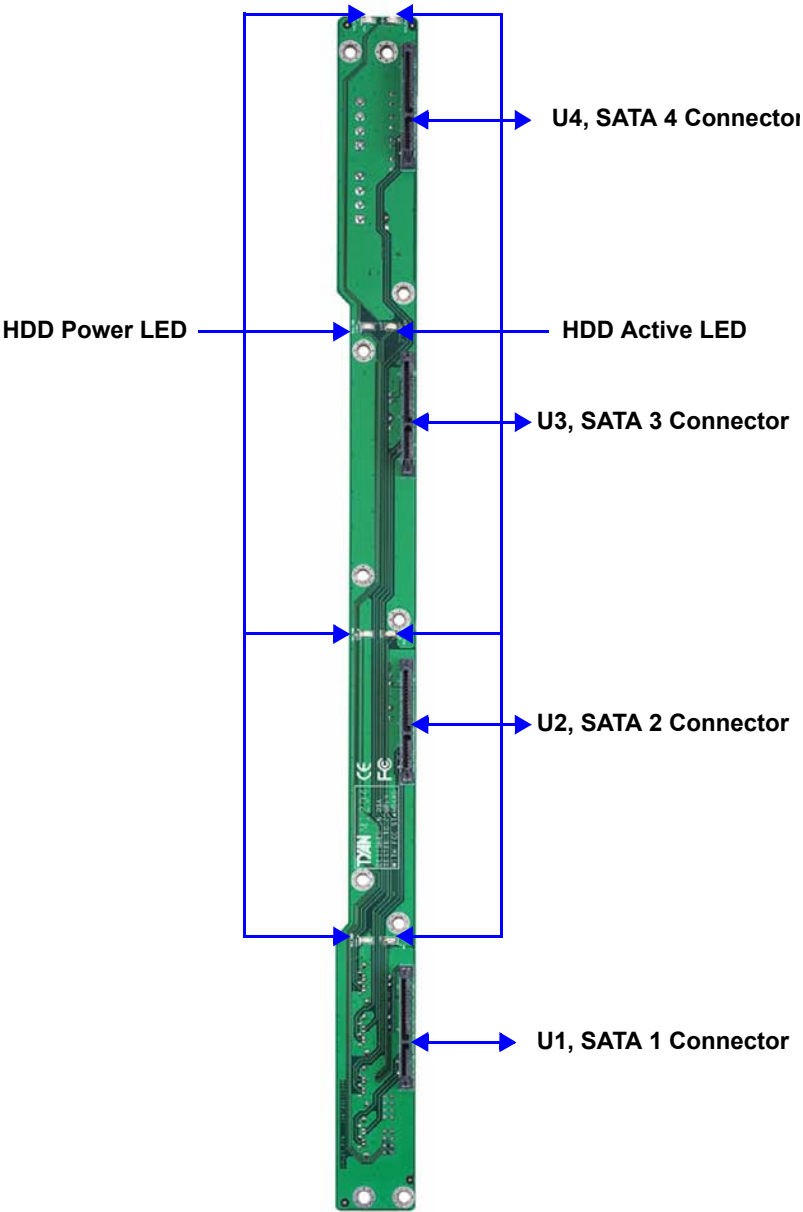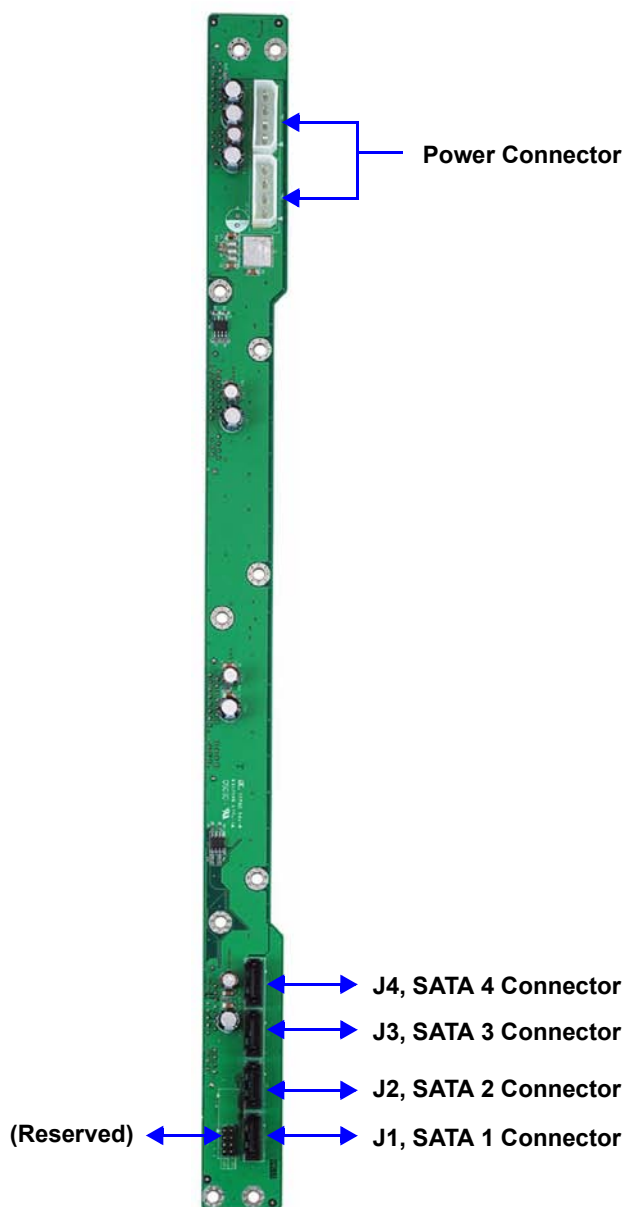3. Remove ten screws that secure the bracket to the adapter board.
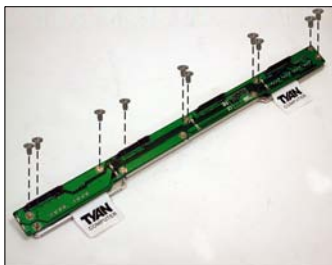
4. Release the adapter board free from the bracket.

5. After replacement, place and secure the unit into the chassis following the reverse procedures from step 1 to 4.

3.8.1   SATA Backplane Features

U4, SATA 4 Connector

HDD Power LED

HDD Active LED

U3, SATA 3 Connector

U2, SATA 2 Connector

U1, SATA 1 Connector

Power Connector

J4, SATA 4 Connector

J3, SATA 3 Connector

J2, SATA 2 Connector

(Reserved)

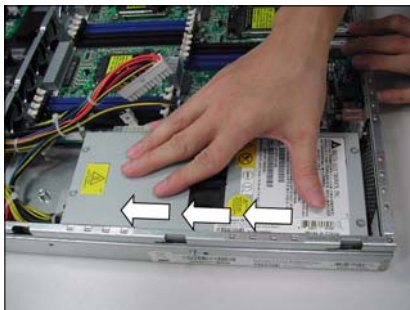J1, SATA 1 Connector

3.9   Replacing the Power Supply

1. Remove two screws securing the power supply to the chassis.

2. Remove the screw securing power supply to the chassis.

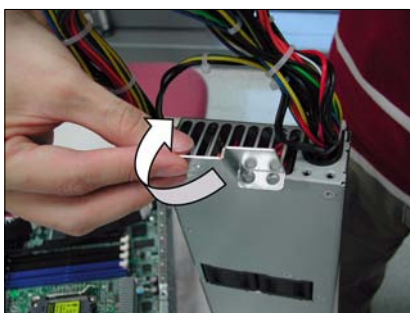3. Push the power supply backward and then lift it free from the chassis.

4. Unscrew the bracket.

5. Take off the bracket and screw it to a new power supply unit.

6. After replacement, place and secure the unit into the chassis following the procedures described earlier in reverse order.

Appendix I: BIOS Differences

The following table displays the differences in BIOS between B4980 and S4980. For a complete review of S4980 BIOS, refer to the motherboard manual.

	S4980 Mainboard	B4980 Barebone
Hardware Health Configuration		
Auto FAN Power Control	Disabled	Enabled
Hardware Health Event Monitoring		
	CPU1 FAN1 Speed (TACH1)	System FAN1 Speed (TACH6)
	CPU2 FAN2 Speed (TACH2)	System FAN2 Speed (TACH7)
	CPU3 FAN6 Speed (TACH14)	System FAN3 Speed (TACH9)
	CPU4 FAN5 Speed (TACH13)	System FAN4 Speed (TACH10)
	System FAN3 Speed (TACH5)	System FAN5 Speed (TACH5)
	System FAN4 Speed (TACH6)	System FAN6 Speed (TACH1)
	System FAN7 Speed (TACH15)	System FAN7 Speed (TACH2)
	System FAN8 Speed (TACH16)	System FAN8 Speed (TACH3)

Appendix II: Cable Connection Tables

SATA Cable

Table 1: B5372G20V4H Model

M1208 SATA Backplane	Connect to	Motherboard
SATA 1 (J1)	→	J20 (SATA0)
SATA 2 (J2)	→	J22 (SATA1)
SATA 3 (J3)	→	J24 (SATA2)
SATA 4 (J4)	→	J19 (SATA3)

FAN Cable

Table 2: System Fan to M1012 Adapter Board

System Fan	Connect to	M1012
Fan 1~Fan 8	→	J14

Table 3: M1012 Adapter Board to Motherboard

M1012	Connect to	Motherboard Fan
J14	→	J15

Power Supply Cable

Table 4: Power Supply to Motherboard

Power Supply	Connect to	Motherboard
P1 24-pin power cable	→	PW3 24-pin connector
P2 8-pin power cable	→	PW5 8-pin connector
P3 4-pin power cable	→	PW2 4-pin connector
4-pin power cable	→	PW1 8-pin connector upper side

Table 5: Power Supply to M1012 Adapter Board

Power Supply	Connect to	M1012
P5 4-pin power cable	→	PW2 4-pin connector

Table 6: Power Supply to M1208 SATA Backplane

Power Supply	Connect to	M1208
P4 4-pin power cable	→	PW1 4-pin connector

Other Cables

Table 7: M1012 Adapter Board to Motherboard

M1012	Connect to	Motherboard
J1 Front Panel connector	→	J14 (TYFP1)
J3 (LAN / ID LED)	→	J3 (TYFP2)

Table 8: M1003 Front Panel Control Board Related Cable

M1003 J1 USB connector	→	Motherboard J17
M1003 J2 connector	→	M1012 J2 connector

Table 9: DVD-ROM Related Cable

| Motherboard IDE connector (IDE1)	→	DVD-ROM Backplane
M1012 J19 power connector	→	DVD-ROM Backplane

Table 10: Chassis Intrusion Cable

Chassis Intrusion (2-pin)	→	Motherboard J14 (Pin 16 & Pin 18)

Appendix III: Installing SMDC Cards

The following provides you with the information on installing SMDC cards. You may refer to the following for installing M3289 or M3290 into HDD tray or chassis.
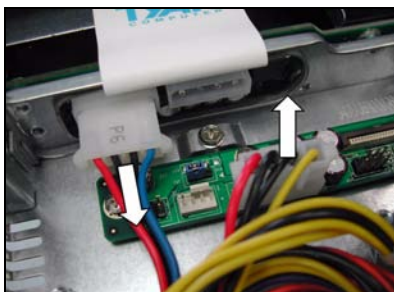
Screws List (including screws for Rail)

A: Flat 6#-32 x4~x16

B: B-type 6#-32 x4

C: M4-4L x8

D: M4-5L x4

E: M4-8L x8
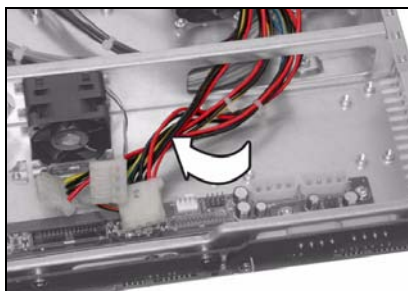
F: M4-15L x2

G: 13.5mm stand-off x1
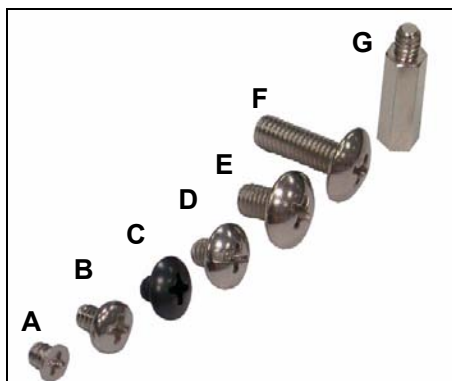
Installing M3290/M3291 into GT24 Chassis

NOTE: The products produced now may not support the pro-
cedures below. We'll provide you with the upgraded models
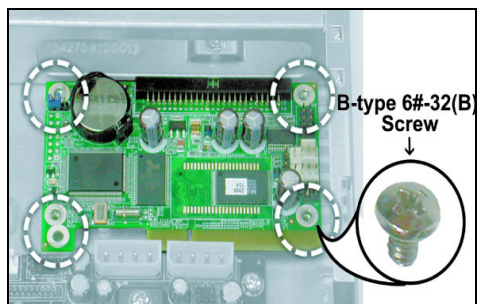as soon as possible.

1. Disconnect the power connectors on HDD backplane and
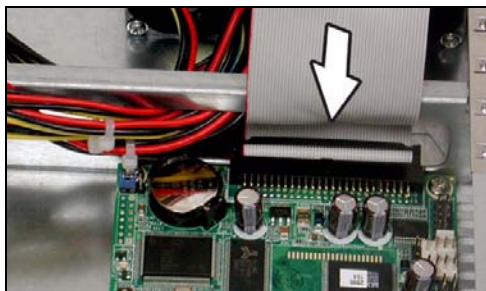   M1012.

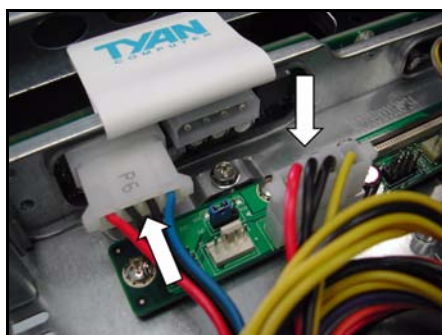2. Push the power cables aside.

3. Align M3290/M3291 with 4 "M2" PC stand-offs. Secure
   M3290/M3291 to chassis with 4 screws.

4. Connect the cable to M3290. Arrange and connect the cable to SMDC connector on mainboard. Be careful not to block the air flow.
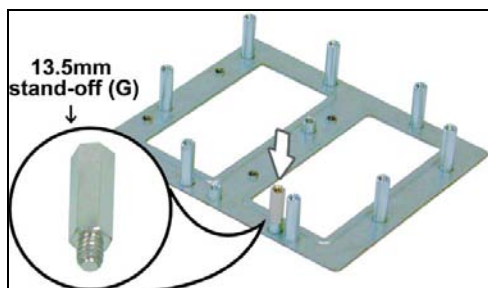

5. Reconnect the power connectors on HDD backplane and M1012.
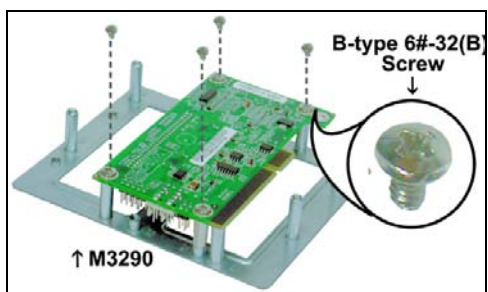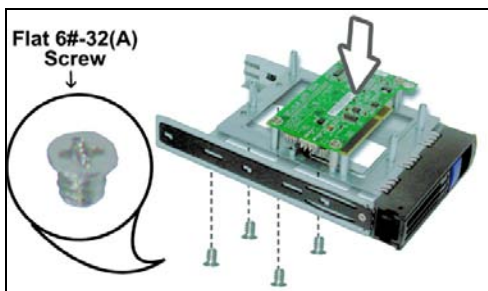
Installing M3290/M3291 into HDD tray

1. Secure a removable stand-off of 13.5mm to the location of "M2" stand-off as illustrated on SMDC bracket.

2. Secure M3290 in reverse to 4 "M2" stand-offs on bracket.

3. a: Choose a HDD tray. **NOTE**: Refer to the location of SMDC connector on mainboard for choosing a HDD tray.
    b: Secure SMDC to the HDD tray.

4. a: Inset the cable into the rear of HDD tray. b: Connect the cable to M3290. c: Insert and secure HDD tray.

↓For internal or dummy HDD tray, secure it with 1 or 2 screws.
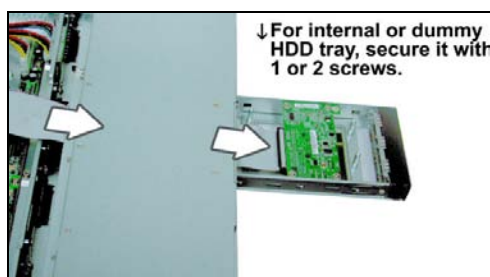
5. Arrange and connect the cable to SMDC connector on mainboard. Be careful not to block the air flow.

NOTE

Appendix IV: FRU Parts List

GT24-B4980 FRU Parts				
Item	Model Number	Picture	Quantity	Description
Motherboard	S4980G2NR		1	S4980G2NR Supports 4way Socket F AMD$^®$ Opteron
Chassis Unit	CCHA-0250		1	GT24 1U Chassis for B4980
Cover	CCCV-0090		1	Rear Top Cover for GT24
Chassis Front Bezel	CFBZ-0070		1	Front Bezel for GT Series 1U Chassis
Drive Tray	CHDT-0050		4	Removable 3.5"HDD Tray
Power Supply	CPSU-0112		1	600W 1U Single Power Supply
FAN	CFAN-0063		3	40x40x56mm, 12V, 8-Pin, 15000RPM
FAN	CFAN-0072		2	40x40x28mm, 12V, 8-Pin, 15000RPM
Heat Sink & Cooler	CHSK-0170		4	Socket F CPU Heat Sink
Peripheral Drives & Parts	CDVD-0020		1	Slim Type DVD-ROM
	CPCA-0230		1	DVD-ROM Adapter Board with Screw

GT24-B4980 FRU Parts				
Item	Model Number	Picture	Quantity	Description
Cable Set	CCBL-0329		4	SATA Cable, 200mm
	CCBL-0340		1	Control Board Cable, 250mm
	CCBL-0355			USB Cable, 580mm
	CCBL-0405		1	TYFP I Cable, 300mm
	CCBL-041A		1	TYFP II CABLE, 450mm
	CCBL-0433		1	CD-ROM Cable, 395mm
	CCBL-0420		1	CD-ROM Power Cable, 80mm
	CCBL-0653		1	FAN Cable, 300mm
	CCBL-0310		1	A/C Power Cord, US Type, 2440mm
	CCBL-0300		1	A/C Power Cord, EU Type, 1800mm

GT24-B4980 FRU Parts				
Item	Model Number	Picture	Quantity	Description
PCBA	M1208		1	SATA/SAS 4-Port HDD Backplane
	M1012-RS		1	Fan Adapter Board
	M1003-RS		1	Front Control Board Module
Rack Mounting Parts	CRAL-0031		1	Rail Kit
	CEAR-0050		1	Mounting Ear Kit
LCD Module	CLCM-0040		1	LCD Module Kit for GT Series 1U Chassis
SMDC IPMI Card	M3291		1	SMDC IPMI Card
	CCBL-0624		1	SMDC Cable, 800MM

NOTE

Technical Support

If a problem arises with your system, you should first turn to your dealer for direct support. Your system has most likely been configured or designed by them and they should have the best idea of what hardware and software your system contains. Hence, they should be of the most assistance for you. Furthermore, if you purchased your system from a dealer near you, take the system to them directly to have it serviced instead of attempting to do so yourself (which can have expensive consequences).

If these options are not available for you then Tyan Computer Corporation can help.Besides designing innovative and quality products for over a decade, Tyan has continuously offered customers service beyond their expectations. Tyan's website (**www.tyan.com**) provides easy-to-access resources such as in-depth Linux Online Support sections with downloadable Linux drivers and comprehensive compatibility reports for chassis, memory and much more. With all these convenient resources just a few keystrokes away, users can easily find the latest software and operating system components to keep their systems running as powerful and productive as possible. Tyan also ranks high for its commitment to fast and friendly customer support through email. By offering plenty of options for users, Tyan serves multiple market segments with the industry's most competitive services to support them.

"Tyan's tech support is some of the most impressive we've seen, with great response time and exceptional organization in general" - Anandtech.com

Please feel free to contact us directly for this service at **tech-support@tyan.com**

Help Resources:

1. See the beep codes section of this manual.

2. See the TYAN website for FAQ's, bulletins, driver updates, and other information: http://www.tyan.com

3. Contact your dealer for help BEFORE calling TYAN.

4. Check the TYAN user group: alt.comp.periphs.main-board.TYAN

Returning Merchandise for Service

During the warranty period, contact your distributor or system vendor FIRST for any product problems. This warranty only covers normal customer use and does not cover damages incurred during shipping or failure due to the alteration, mis-use, abuse, or improper maintenance of products.

NOTE: A receipt or copy of your invoice marked with the date of purchase is required before any warranty service can be rendered. You may obtain service by calling the manufacturer for a Return Merchandise Authorization (RMA) number. The RMA number should be prominently displayed on the outside of the shipping carton and the package should be mailed pre-paid. TYAN will pay to have the board shipped back to you.

Transport GT24 B4980 Service Engineer's Manual v1.0

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